

REMARKS

Claims 1-31 remain pending in the application. Minor amendments have been made to the claims to address certain idiosyncrasies. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 102

Claims 1, 4, 11, and 13 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Takahashi (U.S. Pat. No. 5,728,591). This rejection is respectfully traversed.

Independent claims 1 and 11 call for a display panel having an electrooptic material layer on a substrate, a driver integrated circuit mounted on an extended area of an edge of the substrate, the extended area being provided in at least a margin of the display panel; and a control circuit board that is provided above the driver integrating circuit and substantially within the extended area, the control circuit board is connected to an input terminal portion of the driver integrated circuit.

In contrast, Takahashi teaches in Fig. 21(d) a substrate 171 disposed opposite an integrated circuit 167 (which is improperly labeled as Item 176 in Fig. 21(d)). A liquid crystal layer 172 is disposed between the substrate 171 and the integrated circuit 167. The integrated circuit 167 is illustrated in greater detail in Fig. 21(c) and includes an x-driver region 169, a y- driver region 170, and a pixel region 168.

While the substrate 171 and integrated circuit 167 are illustrated in a stacked relationship in Fig. 21(d), Takahashi is completely silent with respect to the integrated

circuit 167 being mounted on an extended area of the substrate 171 as is claimed. In fact, Takahashi is completely silent with respect to any particular configuration of the integrated circuit 167 relative to the substrate 171 except that the two components are "opposed" as illustrated in Fig. 21(d).

Furthermore, no control circuit board is provided in Takahashi as is claimed. The office action seems to suggest that the structure illustrated in Fig. 21(c) corresponds to a control circuit board. However, the structure of Fig. 21(c) is of an integrated circuit 167. No control circuit board is illustrated or described. Furthermore, the claims call for such a control circuit board to be provided above the driver integrated circuit and substantially within the extended area of the substrate. Takahashi does not show this configuration. In fact, it seems impossible for the components of Fig. 21(c) to provide a control circuit board while simultaneously providing an integrated circuit. This does not make sense. Inasmuch as no control circuit board is provided, the teachings of Takahashi also fail to show such a control circuit board provided above the driver integrated circuit and substantially within an extended area of the substrate.

Claims 4 and 13 depend from claims 1 and 11 respectively. It is respectfully submitted that these claims are allowable for at least the same reasons as set forth above with respect to their base claims.

REJECTION UNDER 35 U.S.C. § 103

Claims 2 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Takahashi in view of Ikedo, et al. (U.S. Patent No. 4,379,621). This rejection is respectfully traversed.

Claim 2 calls for subject matter similar to that of claims 1 and 11 discussed above. That is, claim 2 calls for a driver integrated circuit mounted on an extended area of one of the substrates and a control circuit board provided above the driver integrated circuit and substantially within the extended area. As set forth above in greater detail with respect to claims 1 and 11, Takahashi fails to teach this configuration. Ikedo fails to adequately supplement the shortcomings of Takahashi.

Claim 10 depends from claim 1. Applicant respectfully submits that claim 10 is allowable for at least the same reasons as set forth above with respect to claim 1.

Claims 3, 6, 12 and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ikedo, et al. in view of Takahashi. Ikedo fails to adequately supplement the shortcomings of Takahashi.

Claims 3 and 12 call for a first extended area provided in one of two adjacent margins of the display panel wherein the first substrate extends further than an edge of the second substrate; a second extended area provided in the other of the two adjacent margins wherein the second substrate extends further than an edge of the first substrate. A scanning driver integrated circuit is mounted on the first extended area. A data signal driver integrated circuit is mounted on the second extended area. A control circuit board is provided above the scanning driver integrated circuit or the data signal driver integrated circuit so as to be essentially within/proximate a plane region of either the first or second extended areas.

In contrast, Ikedo teaches a plurality of parallel finger electrodes in a matrix electrode. There is no teaching or suggestion of providing extended areas on two substrates for accommodating drivers, nor any teaching or suggestion of a control

circuit board provided above either driver. In fact, it is unclear to the applicant as to the applicability of this reference to the claimed invention. Takahashi, as stated above, certainly fails to supplement the shortcomings of Ikedo. The claims call for a pair of drivers disposed on a pair of extended areas. A control circuit board is provided above at least one of the drivers. The prior art of record is completely silent with respect to this arrangement.

Claims 6 and 15 depend from claims 3 and 11 respectively. Applicant respectfully submits that these claims are allowable for at least the same reasons as set forth above with respect to their base claim.

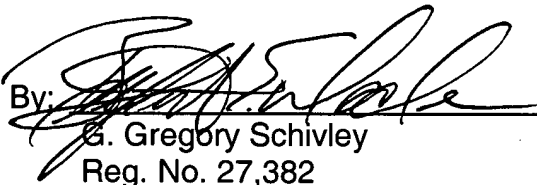
As for the remaining claims, 5, 8, 14, 17, 20-22, 24-25, 27, 29, and 31 relative to Ikedo, et al, 7, 16, 23 and 28 relative to Takahashi, et al., 9, 18, and 30 relative to Takahashi, et al., and claims 10, 19, and 26, relative to Ikedo, et al., these claims depend directly or indirectly from one of the aforementioned independent claims 1-3 or 11-12. Applicant respectfully submits that these claims are in condition for allowance for at least the same reasons as set forth above with respect to their base claims.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: Nov. 6, 2002

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ATTACHMENT FOR CLAIM AMENDMENTS

The following is a marked up version of each amended claim in which underlines indicates insertions and brackets indicate deletions.

1. (Amended) A display device comprising:

a display panel having an electrooptic material layer on a substrate;_i[,]

[said display panel having] a driver integrated circuit mounted on an extended area [in which] of an edge of the substrate, said extended area provided in at least a margin of said display panel;_i[,]

wherein a circuit board having electronic components thereon is provided above said driver integrated circuit and substantially within said extended area,

wherein [a control circuit board,] a circuit board having electronic components thereon is provided above said driver integrated circuit [so as to be] and substantially [placed] within said extended area, [the control circuit board being] the circuit board connected to said driver integrated circuit.

2. (Amended) A display device comprising:

a display panel having an electrooptic material layer sandwiched between a pair of substrates disposed opposite to each other;_i[,]

[said display panel having] a driver integrated circuit mounted on an extended area in which an edge of one of the substrates extends further than an edge of the other substrate, said extended area provided in at least a margin of said display

panel_i[,]

wherein [a control circuit board,] a circuit board having electronic components thereon is provided above said driver integrated circuit [so as to be] and substantially [placed] within said extended area, the control circuit board being [is] connected to an input terminal portion of said driver integrated circuit.

3. (Amended) A display device comprising:

a display panel including:

a first and a second substrate opposed to each other;

an electrooptic material layer provided between the first and second substrates;

a first extended area provided in one of two adjacent margins of said display panel wherein the first substrate extends further than an edge of the second substrate;

a second extended area provided in the other of the two adjacent margins wherein the second substrate extends further than an edge of the first substrate [margin];

scanning electrodes formed on a surface of the first substrate [which is] opposed to the second substrate;

data-signal electrodes formed on a surface of the second substrate [which is] opposed to the first substrate;

a scanning driver integrated circuit connected to said scanning electrodes, the scanning driver integrated circuit being [which is] mounted on the first

extended area[, in which the first substrate extends further than an edge of the second substrate]; and

a data-signal driver integrated circuit connected to said data-signal electrodes [which is] mounted on the second extended area[, in which the second substrate extends further than an edge of the first substrate];

wherein [a control circuit board] a circuit board having electronic components thereon is provided at least above said scanning driver integrated circuit mounted in said first extended area or said data-signal driver integrated circuit mounted in said second extended area so as to be [almost] essentially within a plane region of either extended area[,] and

an input terminal portion of said scanning driver integrated circuit mounted in said first extended area and an input terminal portion of said data-signal driver integrated circuit mounted in said second extended area are connected to an output terminal portion of said control circuit board.

5. (Amended) A display device according to Claim 1, wherein said control circuit board further comprises a circuit-wiring pattern formed on a flexible insulating-resin substrate and electronic components provided for controlling a driving of said display panel.

6. (Amended) A display device according to Claim 3, wherein said control circuit board, mounted on one of said first extended area and said second extended area, extends so as to be connected to an end of an input wiring portion formed close to

a shorter side of the other of said extended [area] areas.

7. (Amended) A display device according to Claim 2, wherein said control circuit board has a multilayer structure having an insulating [a] layer interposed between a plurality of wiring layers in which predetermined upper and lower wiring layers are connected via a through hole[or a via hole].

11. (Amended) An electronic apparatus comprising:
a display device provided with a display panel having an electrooptic material on a substrate;[,]

[said display panel having] a driver integrated circuit mounted on an extended area [in which] of an edge of the substrate, said extended area provided in at least a margin of said display panel;[,]

wherein [a control circuit board,] a circuit board having electronic components thereon is provided above said driver integrated circuit proximate said extended area, said control circuit board being [is] connected to [the input terminal portion of] said driver integrated circuit; and

an input unit for inputting a signal to said display device;

wherein said display device is accommodated in a casing.

12. (Amended) An electronic apparatus comprising:

a display device [comprising] having a display panel including:

a first and a second substrate opposed to each other;

an electrooptic material layer provided between the first and second substrates;

a first extended area provided in one of two adjacent margins of said display panel wherein the first substrate extends further than an edge of the second substrate;

a second extended area provided in the other of the two adjacent margins wherein the second substrate extends further than an edge of the first substrate [margin];

scanning electrodes formed on a surface of the first substrate [which is] opposed to the second substrate;

data-signal electrodes formed on a surface of the second substrate [which is] opposed to the first substrate;

a scanning driver integrated circuit connected to said scanning electrodes [which is] mounted on the first extended area[, in which the first substrate extends further than an edge of the second substrate]; and

a data-signal driver integrated circuit connected to said data-signal electrodes which is mounted on the second extended area[, in which the second substrate extends further than an edge of the first substrate];

wherein [a control circuit board] a circuit board having electronic components thereon is provided at least above said scanning driver integrated circuit mounted in said first extended area or said data-signal driver integrated circuit mounted in said second extended area so as to be proximate a plane region of either extended area_i[,] and

an input terminal portion of said scanning driver integrated circuit mounted in said first extended area and an input terminal portion of said data-signal driver integrated circuit mounted in said second extended area are connected to the output terminal portion of said control circuit board; and

an input unit for inputting a signal to said display device;

wherein said display device is accommodated in a casing.

14. (Amended) An electronic apparatus according to Claim 11, wherein said control circuit board further comprises a circuit-wiring pattern formed on a flexible insulating-resin substrate and electronic components mounted thereon for controlling a driving of said display panel.

18. (Amended) An electronic apparatus according to Claim 11, wherein said electrooptic material layer [is] further comprises a liquid-crystal layer.

19. (Amended) An electronic apparatus according to Claim 11, wherein said electrooptic material layer [is] further comprises an electroluminescent light-emitting layer including an electroluminescent material.

21. (Amended) A display device according to Claim 2, wherein said control circuit board further comprises a circuit-wiring pattern formed on a flexible insulating-resin substrate and electronic components provided for controlling a driving of said display panel.

22. (Amended) A display device according to Claim 3, wherein said control circuit board further comprises a circuit-wiring pattern formed on a flexible insulating-resin substrate and electronic components provided for controlling a driving of said display panel.

23. (Amended) A display device according to Claim 3, wherein said control circuit board has a multilayer structure having an insulating [a] layer interposed between a plurality of wiring layers in which predetermined upper and lower wiring layers are connected via a through hole[or a via hole].

26. (Amended) A display device according to Claim 3, wherein said electrooptic material layer [is] further comprises an electroluminescent light-emitting layer including an electroluminescent material.

27. (Amended) An electronic apparatus according to Claim 12, wherein said control circuit board further comprises a circuit-wiring pattern formed on a flexible insulating-resin substrate and electronic components mounted thereon for controlling a driving of said display panel.